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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/780,356 | 02/17/2004 | Luis F. Barron | DP-310740 | 9940 |
| 7590 02/02/2006 | | | EXAMINER | |
| JIMMY L. FUNKE DELPHI TECHNOLOGIES, INC. Legal Staff, Mail Code: 480-410-202 P.O. Box 5052 Troy, MI 48007-5052 | | | DEVORE, PETER T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3751 | |
| DATE MAILED: 02/02/2006 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-------------------------------|--|
| Office Action Summary | Application No. 10/780,356 | Applicant(s) BARRON ET AL. | |
| | Examiner Peter T. deVore | Art Unit 3751 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 10, 15-21, and 25-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Sudani.

Regarding claim 10, the Sudani reference discloses a solenoid valve comprising a housing 10, a rod 40, a ball 50, a valve seat 32, a coil 80, and a winding bay 82, and wherein the rod pre-travels as claimed (see column 5, lines 1-3). Regarding claim 15, the valve further comprises a plunger 60 staked to a grooved portion of the rod 40 (see Figure 1). Regarding claim 16, the valve further comprises a stepped portion of smaller diameter (proximate reference number 40 in Figure 1) between two guiding surfaces. Regarding claim 17, the valve further comprises a supply port 102 and a ball retainer rib (rib which supports spring 52). Regarding claim 18, the valve further comprises a control port 104 and an exhaust port 106. Regarding claim 19, see col. 3, lines 47-51. Regarding claims 20 and 21, the Sudani reference discloses a solenoid valve comprising a housing 10, a valve seat 32, seat blocking means/ball 50, actuation

means/rod 40, energization means/coil 80, and a winding bay 82, and wherein the actuation means builds up momentum as claimed (see column 5, lines 1-3). Regarding claim 25, the valve further comprises a plunger 60 staked to a grooved portion of the rod 40 (see Figure 1). Regarding claim 26, the valve further comprises a stepped portion of smaller diameter (proximate reference number 40 in Figure 1) between two guiding surfaces. Regarding claim 27, the valve further comprises a supply port 102 and a ball retainer rib (rib which supports spring 52). Regarding claim 28, the valve further comprises a control port 104 and an exhaust port 106. Regarding claim 29, see col. 3, lines 47-51.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-9, 11, 13, 14, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sudani.

Regarding claim 1, the Sudani reference discloses a solenoid valve comprising a valve housing 10, a rod 40, a ball 50, a valve seat 32, a coil 80, and a winding bay 82, and wherein the rod is distanced from the ball in the de-energized configuration (see column 5, lines 1-3), but remains silent as to the distance between the rod and the ball. However, it would have been obvious to employ such a distance of between 0.1 and 0.8

mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 2336. Regarding claim 5, the valve further comprises a plunger 60 staked to a grooved portion of the rod 40 (see Figure 1). Regarding claim 6, the valve further comprises a stepped portion of smaller diameter (proximate reference number 40 in Figure 1) between two guiding surfaces. Regarding claim 7, the valve further comprises a supply port 102 and a ball retainer rib (rib which supports spring 52). Regarding claim 8, the valve further comprises a control port 104 and an exhaust port 106. Regarding claim 9, see col. 3, lines 47-51.

Regarding claims 11 and 22, the Sudani reference discloses a valve as discussed supra but remains silent as to the distance between the rod and the ball in the de-energized configuration. However, it would have been obvious to employ such a distance of between 0.1 and 0.8 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 2336

Regarding claims 3, 4, 13, 14, and 24, the Sudani reference discloses a valve as discussed supra and further wherein the rod comprises shaft 40 and pin 60, but remains silent as to the material the pin and shaft are made from. However, it would have been obvious to make the pin from a harder ferromagnetic material and the shaft from a softer non-ferromagnetic material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In Re Leshin, 125 USPQ 416.

Claims 2, 12, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sudani in view of Wisniewski or Inden.

The Sudani reference discloses a valve as discussed supra, but does not disclose that the valve seat and winding bay are integral. However, the Wisniewski and Inden references disclose similar valves wherein the valve seat and winding bay are integral for simpler construction of the valve. It would have been obvious to modify the Sudani valve such that the valve seat and winding bay are integral in view of Wisniewski or Inden for simpler construction of the valve.

Response to Arguments

Applicant's arguments filed 11/17/05 have been fully considered but they are not persuasive. Applicant first argues regarding claim 10 that the gap between the rod and the ball of the Sudani valve in the de-energized configuration is not specified, and if too small would "have no appreciable effect on the response time". However, it is the Examiner's position that basic physics requires that any gap at all would allow a build up of a net positive momentum in the rod before it contacts the ball, and as Applicant's own specification discusses, a positive momentum in the rod would reduce a response time of the valve as compared to when the rod is in contact with the ball in the de-energized configuration, and such behavior being one of two options available via the claim 10 recitation in alternative form: "compared to a response time when the rod contacts or is very near to the ball in the de-energized configuration", the Sudani valve reads on claim 10. Applicant next argues regarding claim 1 that it would be counter-intuitive to modify

the Sudani valve so that the gap is in the claimed range. However, it remains the Examiner's position that finding such optimum range would require only routine skill in the art.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter T. deVore whose telephone number is (571) 272-4884. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3751

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pd Pd


JUSTINE R. YU
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1/31/06